The Effectiveness of Project-Based Learning Module on Rural School Students' Achievement and Interest in Economic Subject

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Abstract

This study measures the effectiveness of project module learning on students' achievement and interest in a rural school which is Sekolah Menengah Kebangsaan Tanjong Puteri, Kuala Ketil, Kedah. The study sample comprises 40 students in Form 5 as the respodents. This study utilises the quantitative particularly the pre-test and the post-test to assess the achievement of students based on the data collected using questionnaires. The data are analysed using SPSS version 22. The paired t-test results show a significance difference in students' achievement between the pre-test and post-test as indicated by the post-test scores (t= 22.345, p = 0.000). The findings also show that there ia an increase in the Form 5 students' achievement in the post-test after using the project module in the economics subject. As such, this study confirms that the usage of the project module has a high impact on the teaching and learning of the economics subject and could increase the students' interest in taking the economics subject at the SPM level. Therefore, economic teachers could adopt project module learning to improve students' achievement in economic subject.

Keywords:

Project-Based Learning, Students' Achievement, Students' Interest, Economics

INTRODUCTION

In the 21st century, education plays an important role and is a crucial component in the developing a Madani community. Education has the power to transform an individual's attitude either physically or mentally. The National Philosophy of Education has outlined that education in Malaysia is a way to enhance individual talent in a macro and integrated way in order to develop balanced and harmonious citizens in intellectual, spiritual, emotional and physical aspects based on the Rukunegara, as documented in Education Act 1996 (Act 550). The national curriculum has focused on a few important elements to develop excellent human capital in aspects such as knowledge, skills, norms, values, cultural and belief elements to help in students' development in line with the aims of the Education (National Curriculum) Regulations of 1997.

The implementation of a balanced and harmonious curriculum can provide the best effect in the aspects of content, pedagogy and assessment which happens in schools to develop

students who are balanced individuals in the education field. As such, the Malaysian Ministry of Education (MOE) has taken the necessary steps and implement various approaches that have a high impact in the field of education such as project-based learning to encourage the students and transform students' attitude in Malaysia.

The Project-Based Learning (PBL) Module is a teaching and learning material which is student-focused by increasing the students' level of achievement, inclination and the ability to think critically and creatively as well as to expose the students' talent either at the primary school or secondary school. The PBL can encourage students to explore and discover knowledge and make detailed self-assessment and reflection in a particular topic they learn at school. The learning process is indeed important as the students can analyse and learn about new things from the experience that they collected throughout the implementation of a project assigned to them related to specific topics. The main objective of the MOE in introducing the PBL among teachers is to enable students to acquire meaningful and significant knowledge. Additionally, the PBL is also a teaching and learning strategy involving exploration and research in a real-world situation.

Standard Secondary School Curriculum (*Kurikulum Standard Sekolah Menengah*) for Specialized Elective Subjects are elective subjects which were developed by the MOE for Form 4 and Form 5 students in 2017. Each year, it appears that not many students enrol in Economis compared to other elective subjects. The achievement of the subject at *Sijil Pelajaran Malaysia* (SPM) level was not very encouraging compared to other core and elective subjects. Recently, it was stated that Form 5 students were not interested in the economics subject as they thought that the subject was hard to understand due to the various economic concepts. Moreover, they were concern on how to answer the questions related to current issues because they do not read newspapers, articles and economic journals very much. As such, they did not enrol for the subject in Form 5 even though they had taken the subject in Form 4.

According to Wong Siew Fang et al. (2020), the students could organise their thoughts logically and state the ideas generally in the essays to answer the exam questions. However, the students voiced out that teachers used the conventional method without using a variety of activities to attract the students' attention (Zamri Mahamod, 2014). Using the conventional approach, the teachers acted in an autocratic manner and the students did not take part in the teaching and learning conducted by the teachers. In this situation, the students did not focus much and they were not very interested in the lessons especially in the secondary schools. Moreover, the students were not skilled and did not have the confidence to present their ideas in class (Syakirah Shamsudin, 2011).

On that note, this study introduces the PBL module for Form 5 students which could increase the students' achievement and interest in Economics at the SPM level. Specifically, the objectives of this study are twofolds; (1) to identify the rural school students' achievement in Economic subject with the usage of the PBL module, and (2) to identify rural school students' interest in Economic subject with the usage of the PBL module. The next section discusses reviews of past literature.

LITERATURE REVIEW

Students' Achievement

Prior studies investigated the effect of PBL on students' achievement. For example, Zhang and Ma (2023) analyzed 66 research papers using meta-analysis and revealed that PBL positively affected students' development especially in academic aspect. In science education, Aprida and

Mayarni (2023) confirmed that PBL significantly improved students' learning outcomes. In support, Lazic et al. (2021) found that the achievement of mathematics students taught using PBL was significantly better than those taught using conventional method. In technical and vocational education, Isa and Azid (2021) similarly found a significantly better academic performance of students who undergone the PBL method compared to the other students who learned through traditional approach. Furthermore, Twahirwa et al. (2021) verified that students' achievement in science education increased when PBL was properly designed. Thus, the following hypothesis is developed:

H1: There is a signifcant difference in rural school students' achievement in Economic subject with the usage of the PBL module.

Student's Interest

A study conducted in Slovakia verified that almost all students in the study agreed that PBL was interesting (Maros et al., 2023). Similary, through interviews, Isa and Azid (2021) revealed positive feedbacks from students about the PBL. They explained that the learning activities embedded in the PBL were interesting and different from the typical teaching and learning environment. In parallel, Almulla (2020) elaborated that PBL had increased students' engagement because this technique required the students to share their knowledge and frequently discussed information. Moreover, PBL was verified as an effective teaching and learning method that increased students' interest towards a subject because it was regarded as an enjoyable, related to real-world problems, and motivating students to spend more time to study (Syahril et al., 2021).

Although many studies had been conducted to measure the effectiveness of PBL in teaching science, mathematics, as well as technical and vocational education, there is scant evidence on the effect of PBL on students' interest in economics subject. The students from economics subject could have different profiles than science and mathematics students. In Malaysia, economics subject is only introduced to students who selected the arts stream when they are 16 years old. This situation is different from the science and mathematics which are taught to all students from the beginning of primary school. Accordingly, this study investigates the effect of PBL on students' achievement and interest in economics subject to bridge this research gap.

METHODOLOGY

Study Location

Students in rural areas tend to show less attention when teachers are teaching or they might give excuses such as having no interest, forced to work at night and lack of variety of activities during classes. Usually, the rural schools are situated in a village area or somewhere close to the smaller towns. The distance from the school to the town would range from 20kms to 40 kms (Ramli Ismail et. al., 2004). Table 1 shows the total number of students and the number of students who took the *Sijil Pelajaran Malaysian* (SPM) examination from 2018 to 2021 at Sekolah Menengah Kebangsaan Tanjong Puteri, Kuala Ketil, Kedah which is a rural school. SPM is the Malaysian certificate for high school education, the primary and standard measure to evaluate Malaysian Form 5 students' achievements.

Table 1: The total number of students and the number of students who took the SPM examination from 2018 to 2021

Year	Total number of students	Number of students who took SPM	Percentage (%)	Average Subject Grade
2018	70	54	74.07	6.78
2019	60	41	92.68	6.73
2020	58	40	100.00	5.60
2021	60	45	88.93	6.76

Source: Panitia Headcount File, 2022

Based on Table 1, there was a huge gap from the total number of students and the number who took the SPM examination from 2018 to 2021. In 2018, there were 70 students but only 54 students who took te Economics subject. This showed a decrease of 24 students. In 2019, the total number of students decreased to 60 students and the number who took the subject in the SPM examination also decreased to 13 students. In 2020, the total number of students dropped to 58 students and the number who took the Economics subject also dropped to only 1 student. In 2021, there was an increase of 2 students for the total number of students and there was also an increase of 5 students for the number of students who took the Economics subject. This is because the total number of students and the number who took the Economics subject in the SPM were not consistent due to the interest factor when they were in Form 5.

Meanwhile, the students' average grade from 2018 to 2020 dropped from 6.78 to 6.73 and 5.6. The smaller the average grade, the better the quality for the subjects. The percentage for the subject for the 3 consecutive years increased from 74.07% to 92.68% and 100%. This is because the subject teacher had implemented various intervention to the students who took the subject such as smaller groups, clinical intervention for difficult subjects, quiz and improvement module for the economics subjects according to students' achievement level. However, in 2021, the average grade dropped as much as 11.07 while the average subject grade increased as much as 1.16 percent. This was because in that year, the students were learning in a new norm situation due to COVID-19 pandemic which struck the world. At that time, the teaching and learning were mainly conducted via online means such as Google meet, Whatsapp, Zoom and others. As such, the subject teachers could not implement any face-to-face programmes.

Research Design

According to Sabitha (2006), the stidy design is a detailed action of how the study is conducted in a particular field. This can assist the researcher on how to collect information, analyse and describe study findings. This study employed a quantitative method involving pre-testing and post-testing (Campbell & Stanley, 1963). The researcher conducted the study on 40 students from the selected rural school in Kedah.

To achieve the first objective which is to identify students' achievement in Economic subject with PBL module usage, the data were collected at two points of time separated by several months. First the students were taught using the conventional method and asked to answer a set of SPM Economic examination questions within 1 hour and 15 minutes. In the following months which the researcher verified that the students had not recalled most concepts learned through the conventional method, the PBL module was implemented. After delivering

the lesson using the PBL module, the students were asked to to answer a set of SPM Economic examination questions. The marks for the pre-test and post-test were analysed using the Statistical Package for Social Sciences (SPSS) version 22 software.

To achieve the second study objective, the researcher surveyed all students to gather the data on their interest in Economic subject. The questionnaire contains three sections with 15 items in total. Two experts who both had 16 years of teaching experience validated the questionnaire for face and content validity. The questionnaires that had been revised were distributed after conducting the project learning module. Descriptive analysis using frequency and mean were performed to measure students' interest in Economic subject.

Table 2: Summary of items in the questionnaire

Section	Description	Number of items
A	Demographics information of respondents	3
B	Contains items about student interest of the project learning module.	5
C	Conatins items about student perception of the project learning module.	5
		13

FINDINGS AND DISCUSSION

Profiles of the Respondents

The study respondents were rural students who were taking SPM in a rural school which was SMK Tanjong Puteri. A total of 40 students who were Form 5 students took part in the study. They were made up of Malays and Indians. Additionally, the 40 students came from 2 classes, A and B. Based on the Table 3, class A consists of 1 male student (4.76%) and 20 female students (95.24%), whereas class B consists of 9 male students (47.37%) and 10 female students (52.63%.)

Table 3: Demographics of study respondents

Class	Gender		Total
	Male	Female	
A	1	20	21
B	9	10	19
Total	10	30	40

Students' Achievement

The usage of the project learning module in the teaching of Economics provided a positive effect on the Form 5 students' achievement especially for the students in the rural areas. The

researcher conducted a descriptive analysis by using 40 questions in the pre-test and the post-test.

Table 4: Mean and standard deviation for the pre-test and post-test

		Mean	Perception	SD	Standard Error Mean
Pair 1	Pre-test	30.25	40	15.104	2.388
	Post-test	75.50	40	10.610	1.678

Table 4 shows the paired sample statistics for the pre-test and post-test. A total of 40 students were involved in each test conducted by the researcher. The pre-test shows a mean score of 30.25 with a standard deviation point of 15.104. Meanwhile, the post-test showed a mean score value of 75.50 with a standard deviation of 10.610. This shows that the post-test had higher mean value that the pre-test. The conclusion was that the score mean value in the post-test was higher that the pre-test score values.

Table 5: Sample of paired statistics test for the pre-test and post-test

95% Difference Confidence Interval			
Mean	-45.250	Lower	-49.346
Standard Deviation	12.808	Upper	-41.154
Mean of standard error	2.025	Degree of freedom	39
t	22.345	Sig (2-tailed)	.000

Table 5 shows the *p*-value=0.0000 which was lower that the significant level of 0.05. This shows that the pre-test scores had a significant difference compared to the post-test scores (t = 22.345, *p-value*= 0.000). This indicates that there was a significant increase in student achievement after using the PBL module in the Economics subject in class.

As such, it is clear that by using the PBL module, the Form Five students' achievement in the economics subject became more significant and successful. This finding is supported by earlier studies on similar research topic. For instance, Zhang and Ma (2023), Aprida and Mayarni (2023), and Lazic et al. (2021) also proven a significant increase in students' academic achievement after the PBL was adopted in classes. Therefore, teachers should utilise PBL when they are implementing the teaching and learning in class in order to increase and improve the level of student achievement.

Students' Interest

Table 6 shows the percentage and frequency on the students' interest in Economic subject after they were taught using PBL module. There are 5 items in the questionnaire in Section B.

Table 6 shows that for item 1, 36 students (90%) liked the teaching and learning method used by the Economics subject teacher. Only 4 students (10%) did not like the teaching and learning method of the Economics subject teacher. For item 2, 38 students liked the PBL module while 2 students (5%), did not like the project learning module. For item 3, 38 students (95%) were always ready to implement projects for each subtopic in the Economics subject. Item 4 also shows a high frequency of 35 students (87.5%) who were more active when implementing projects with their peers. However, only 5 students (12.5%) were inactive when implementing projects with their peers. As stated by Monica Laina Tonge et al. (2020) it was found via their observation that PBL could increase the students' interest in terms of creativity, curiosity and active participation. The findings of this study also align with prior research, for examples, Maros et al. (2023), Isa and Azid (2021), Almulla (2020), and Syahril et al. (2021) that proven the effectiveness of PBL in increasing students' interest towards the lessons.

Next, item 5 shows only 15 students (37.5%) liked to find information about economic projects online and 25 students (62.5%) did not like to find information about economic projects online. Hudin et al. (2020a) stated that ICT particularly the social media usage and contents could influence students' learning experiences. However, it was also found that students perceived no direct link between ICT usage and their academic achievements (Hudin & Hudin, 2020b) and this could be a reason students in this study did not prefer to use internet to seek information. Besides, the lack of students' preference in using ICT was because rural school students lacked exposure to ICT knowledge and they also did not have adequate skills in computer basics in their daily life. Additionally, the lack of ICT infrastructure in their surroundings was also another reason why the students faced difficulties in finding information about a project through the internet. This situation is in a total opposite of undergraduate students who are provided with ICT infrastructure besides owning smartphones and computers for learning. Therefore, lack of ICT infrastructure did not reduce their interest nor stop them from using ICT for learning because they have their own gadgets to continue using the internet (Ahmad et al., 2021).

Table 6: Percentage and frequency of students' interest

Items	Statement Item	Number of Yes (%)	Number of No (%)
1	I like the teaching method taught by the economics subject teacher	90	10
2	I like the project learning module used by economics teachers	95	5
3	I am always ready to carry out projects for each subtopic in economics subject	95	5
4	I am more active when doing projects with my peers	87.5	12.5
5	I like to find information about economic projects online (surfing the internet)	37.5	62.5

CONCLUSION

This study aims to identify the difference in rural school students' achievement in Economic subject after being taught using conventional method and PBL modul. Moreover, it identifies the students' interest in Economic subject after PBL module is implemented. The results confirms that the PBL modul had increase students' achievement significantly. Moreover, higher number of students show greater interest in Economic subject when PBL module was implemented. However, it is also important to note that students did not prefer PBL when it involves searching for information using ICT, which possibly because the lack of exposure to ICT and underdeveloped ICT in the rural areas.

The study implication on students' learning would be the usage of the PBL module in 21st century learning. It is an excellent choice by the economics teachers to increase the Form Five students' level of interest by using this module. The usage of the module in teaching and learning can encourage students to become more pro-active and create a fun and collaborative learning environment. Additionally, the findings indicated that students' achievement in the post-test improved compared to the pre-test after they utilised the project learning module. The module not only increased the students' achievement but also transformed the teaching methods of the economics teachers. Furthermore, the study implications showed that the teachers experienced a paradigm shift from an exam-based teaching. It is indeed the MOE's strategic aim that students should explore knowledge and improve their skills in a particular subject (Yahya Othman et al., 2012). However, more studies are needed to explore the implementation of PBL embedded with ICT among rural school students.

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